



Flood Workshop

City Council

MONDAY, APRIL 25TH, 2016

January Workshop Follow-up

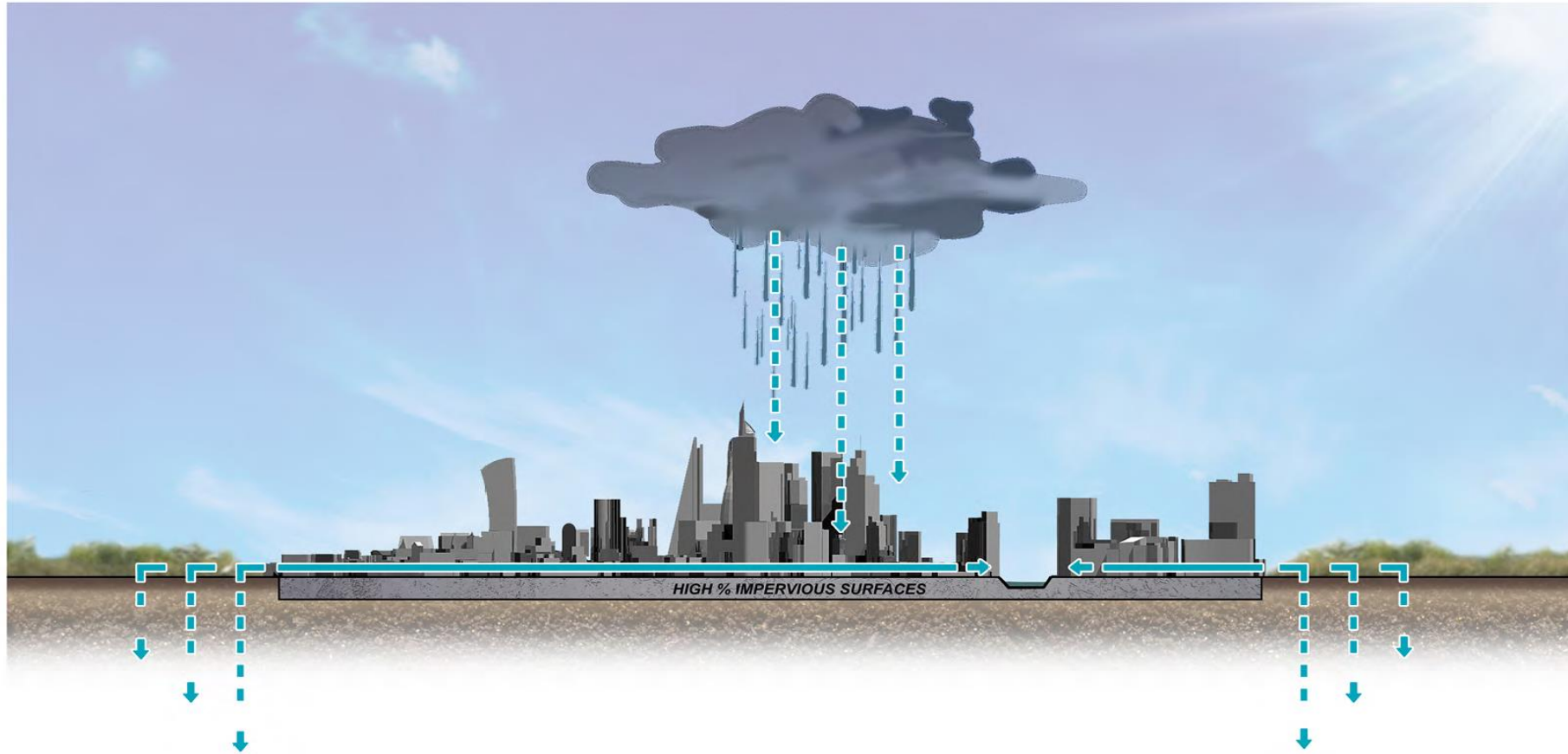
Flood Facts

- Blanco River overflows at about **97,000** cubic feet per second
- This is less than 25-Year Flood Event
- Recent Flood Events:
 - October 1998 105,000 cfs (26-Yr Flood)
 - November 2001 87,300 cfs (17-Yr Flood)
 - November 2004 31,600 cfs (5-Yr Flood)
 - October 2013 101,000 cfs (24-Yr Flood)
 - May 2015 180,000 cfs (150-Yr Flood)
 - October 2015 100,000 cfs (23-Yr Flood)

Flood Facts

- 1' Above BFE requirement adopted in 2005
- Less than 1/3 of properties meet current ordinance
- 25% of the compliant properties flooded in May 2015
- 26% of properties damaged in May 2015 have floodplain permits
- 1% of properties damaged in Oct 2015 have floodplain permits
- 52 - Single Family Properties that Flooded in 1998 & and in both 2015 events at a depth of 6" or more

Impervious Cover



Impervious cover results in an increase in runoff.

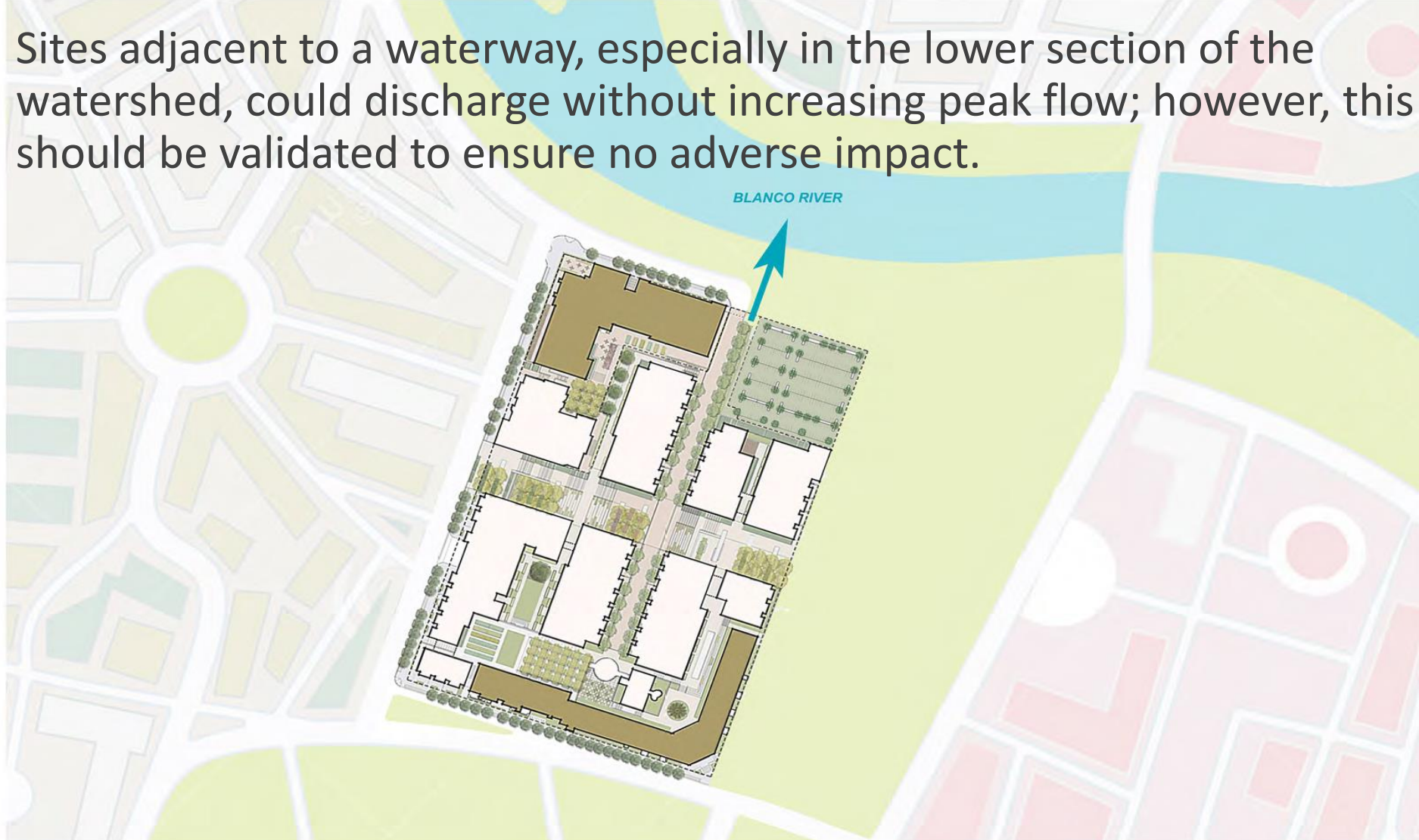
Impervious Cover

The City regulates impervious cover for development and requires on-site detention to mitigate post-construction run-off to existing conditions for the 2-, 10-, 25-, & 100-year storm event.



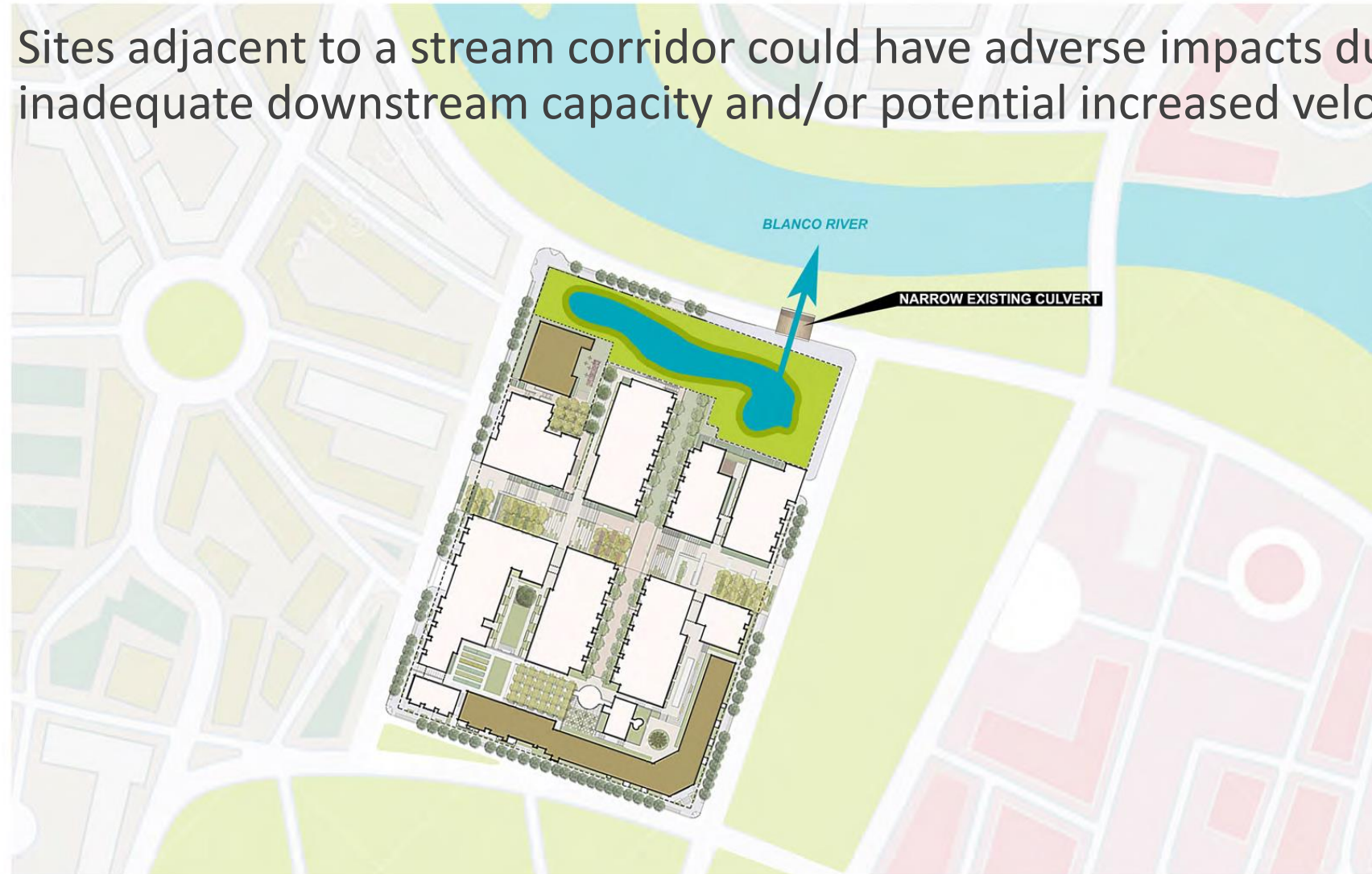
Impervious Cover

Sites adjacent to a waterway, especially in the lower section of the watershed, could discharge without increasing peak flow; however, this should be validated to ensure no adverse impact.



Impervious Cover

Sites adjacent to a stream corridor could have adverse impacts due to inadequate downstream capacity and/or potential increased velocity.

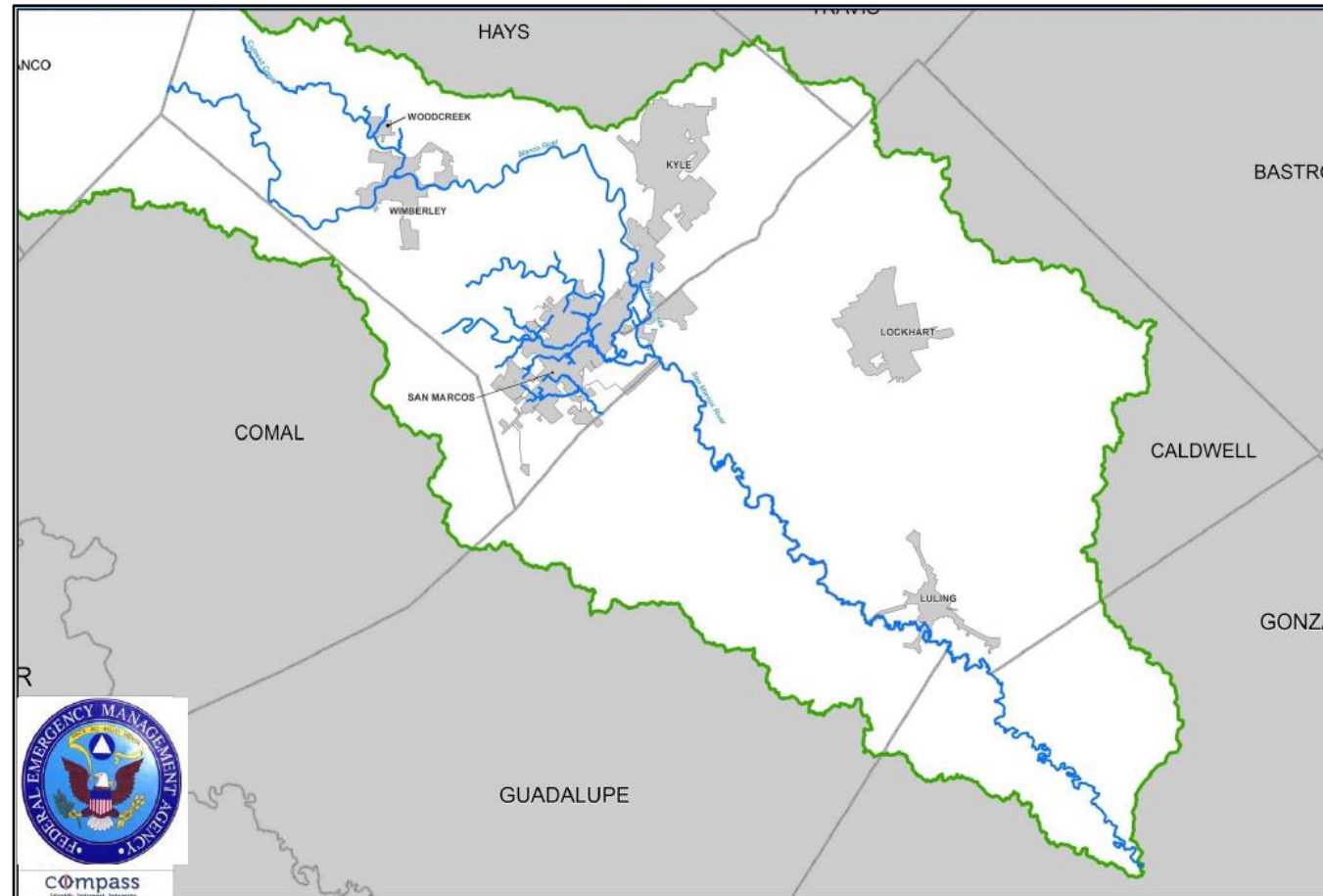


Agenda

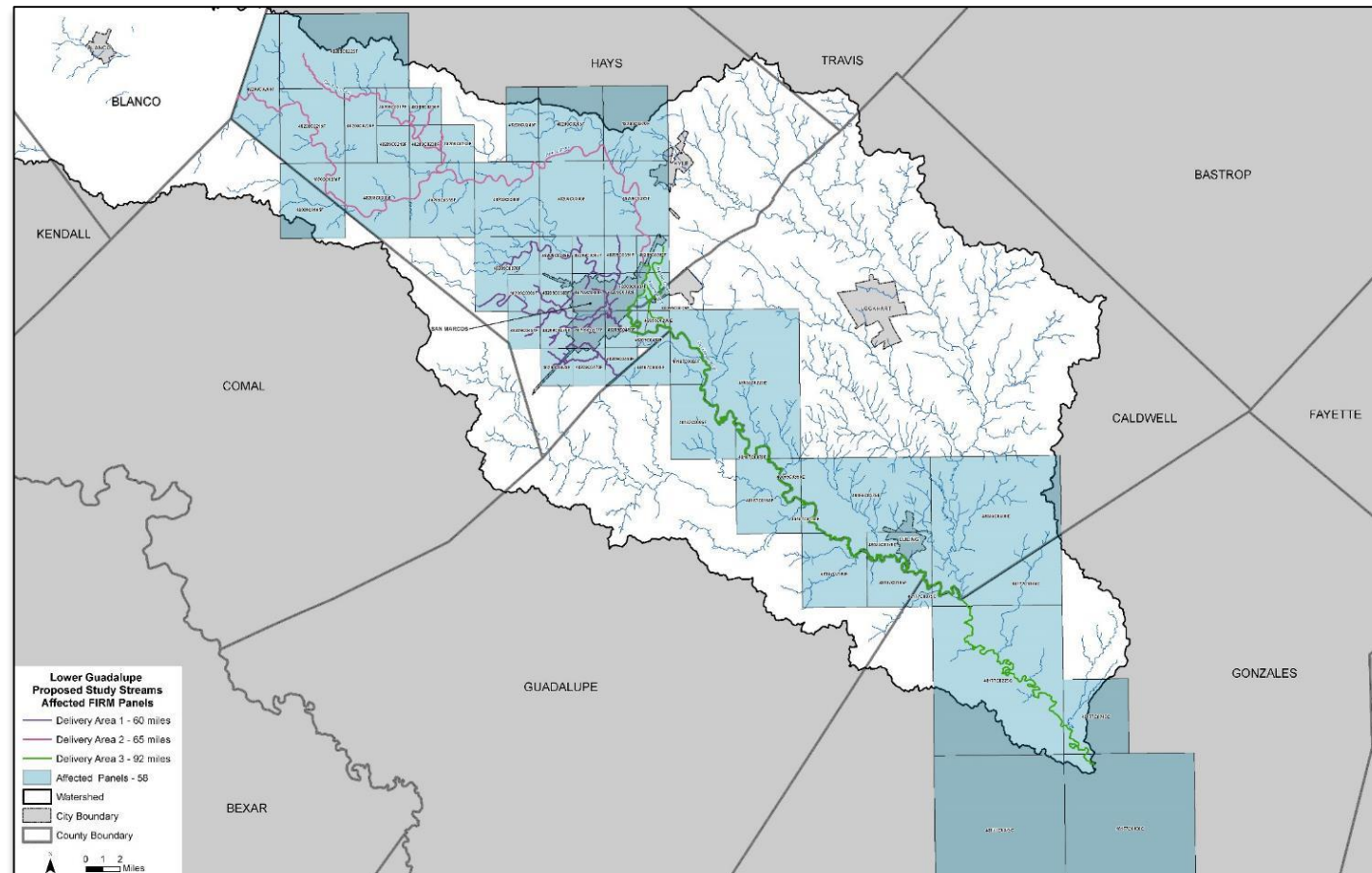
- FEMA Map Revision Update
- Flood Ordinance Changes
- Potential Flood Drainage & Corps of Engineers Projects
- CDBG-Disaster Recovery

FEMA Map Revision Update

Physical Map Revision (PMR)



Flood Insurance Rate Map Panels



Map Update Timeline

August 2015	Advisory Base Flood Elevation Maps Released
November 2015	Physical Map Revision Process Begins
February 2016	Final Hydrology Modeling accepted
June/July 2016	Review of Data by Local Staff
August 2016	Flood Risk Review Meetings
November 2016	Preliminary Flood Insurance Rate Maps available to Public
December 2016	FEMA meetings w/Local Officials

Map Update Timeline

2017

- Insurance Stakeholder Workshop
- Public Flood Risk Open House
- 90-day Appeal and Comment Period
- Resolution of Appeals
- Issue Letter of Final Determination (LFD) – New Maps
- City Map Adoption and Compliance

Flood Ordinance Changes

Ordinance Changes

- No-Rise Floodplain
- Fill Standards
- Compensatory Storage
- Materials Storage
- Revise Freeboard Language
- Access
- Adopt Flood Model
- Schedule Moving Forward

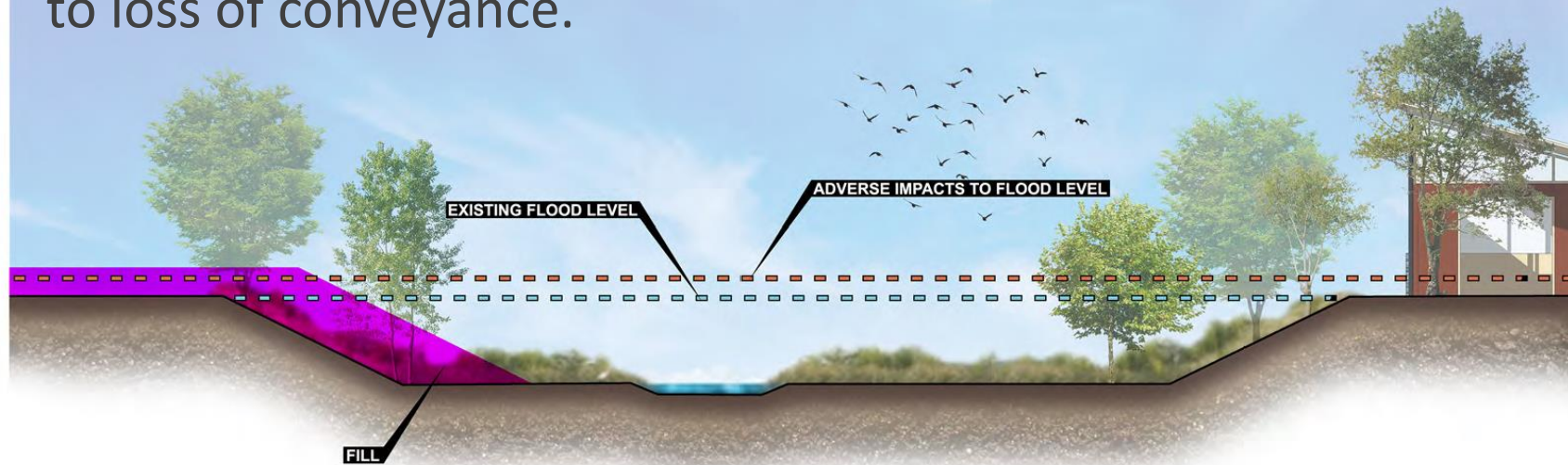
No-Rise Floodplain

PROPOSED REVISION:

- Requirement for any development in the floodplain to provide an analysis to show the following:
 - Extents of Impacts
 - Mitigation measures of Impacts
 - No-rise to floodplain elevations
- Does Council want to consider Single Family Infill exemption?

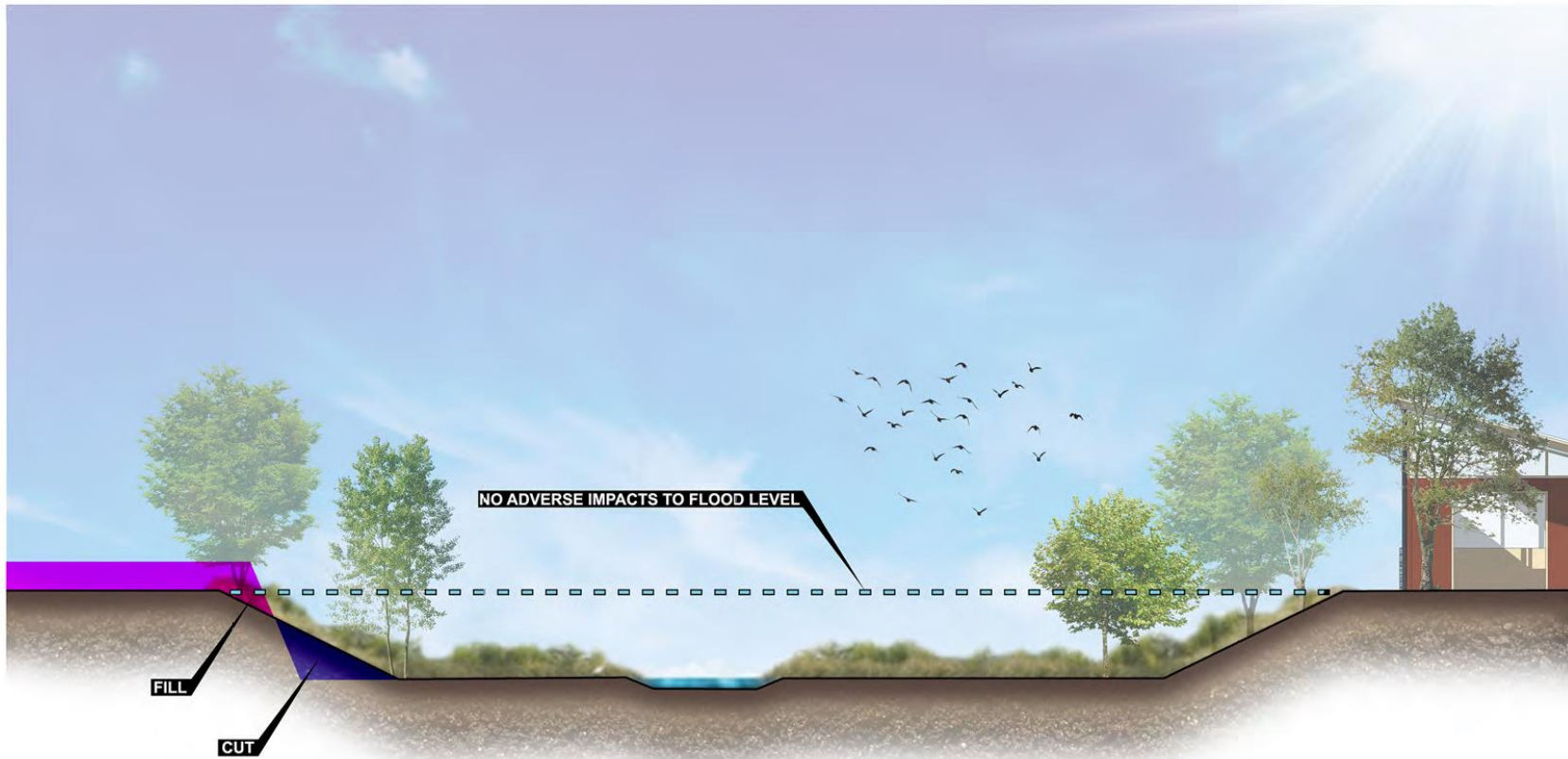
Floodplain Fill/Encroachment

Adding fill or encroaching into a floodplain has possible negative impacts on flood elevations due to loss of conveyance.



Reclaiming the floodplain with fill could also result in an increase in downstream flow due to a reduction in valley storage.

Floodplain Fill/Encroachment



Impact analysis should be performed for fill or encroachment of the floodplain to demonstrate no adverse impact to adjacent properties.

Ordinance Additions

PROPOSED REVISION:

- Fill
 - Provides standards for the placement of Fill within floodplains
- Compensatory Storage
 - Provides for mitigation of the impacts of Fill and loss of storage
- Materials Storage
 - Prohibits the storage of hazardous materials or materials and equipment that could become buoyant and pose an obstruction to flow
 - Requires materials or equipment not prohibited to be firmly anchored to prevent flotation

Elevation/Access

PROPOSED REVISION:

- ELEVATION
 - Revise elevation requirement to 1.5 feet above the base flood elevation
- WET FLOODPROOFING
 - Require small, detached accessory structures to be floodproofed
- DRY FLOODPROOFING
 - Revision to an exemption from the elevation requirement for non-residential structures to allow for flood proofing the structure to 1.5 feet above the base flood elevation
- SITE ACCESS
 - Include additional language requiring developments to design roadway access at or above the base flood elevation

Adopt Flood Model

PROPOSED REVISION:

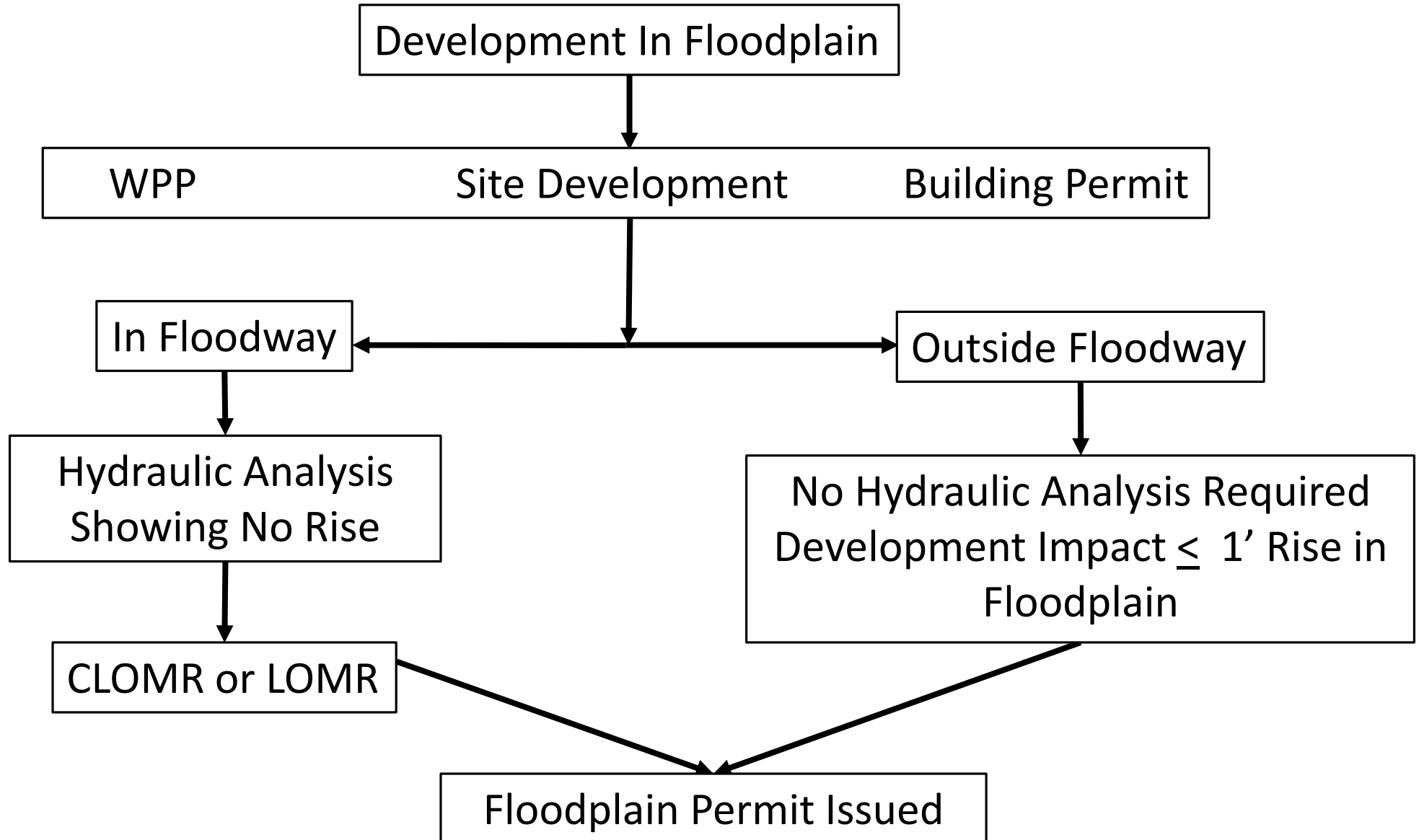
- Adopt a Working Flood Model
 - FEMA Maps and Model updates take time
 - Allows multiple in-progress developments to account for cumulative changes
- 1D Modeling software in place
- 2D Software: purchase & training required - \$15,000 - \$30,000
- Will require additional staff time to review model updates

Ordinance Update Schedule

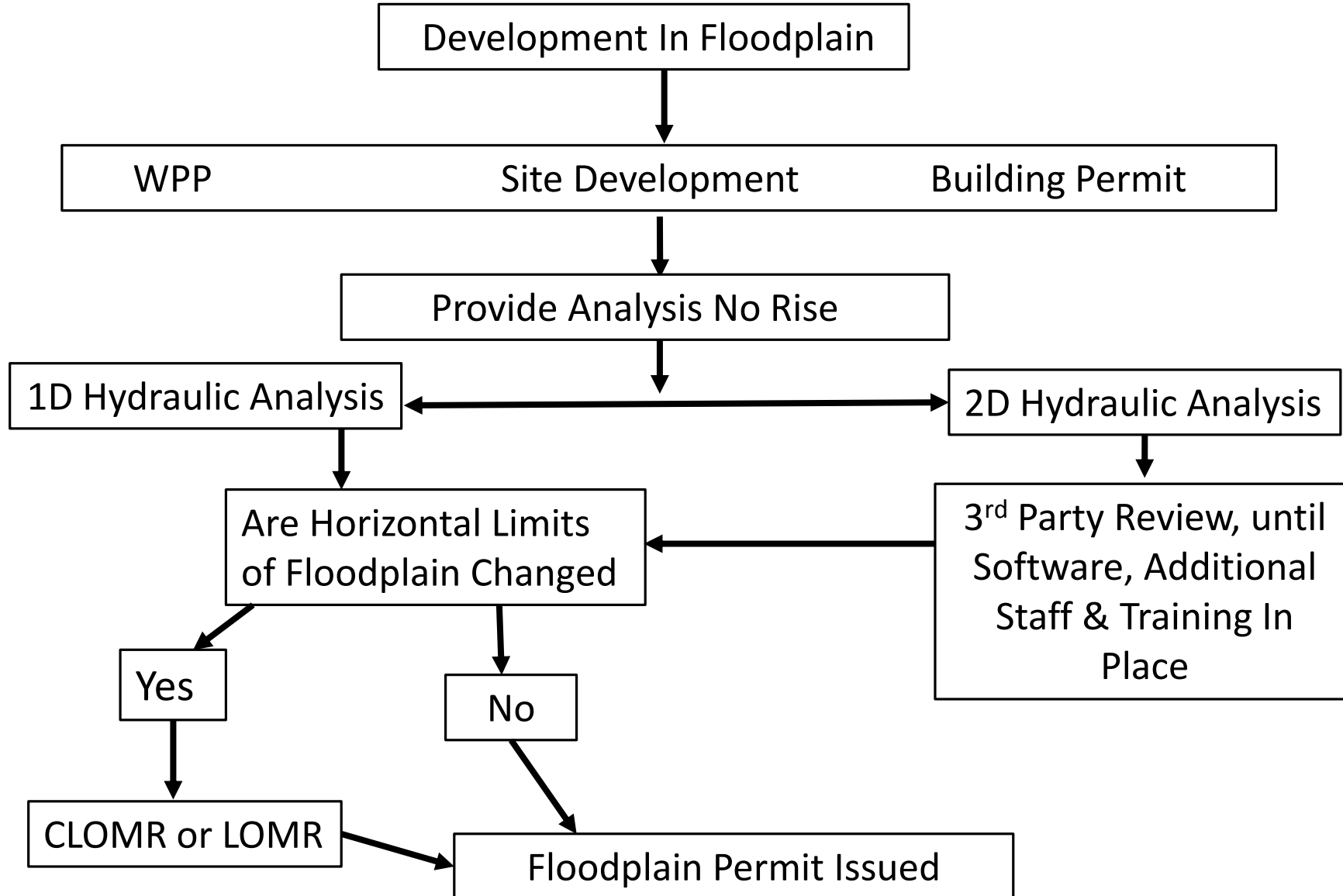
April 25 th	Flood Workshop and Direction to Staff
Mid-May	Public Outreach/Open House
June 21 st	City Council Meeting - Draft Ordinance Update
July 19 th	City Council Meeting - Ordinance 1st Reading/Public Hearing
August 2 nd	City Council Meeting - Ordinance 2nd Reading

Floodplain Development Process

Previous Floodplain Development Process



Proposed Process for Developments in Floodplain



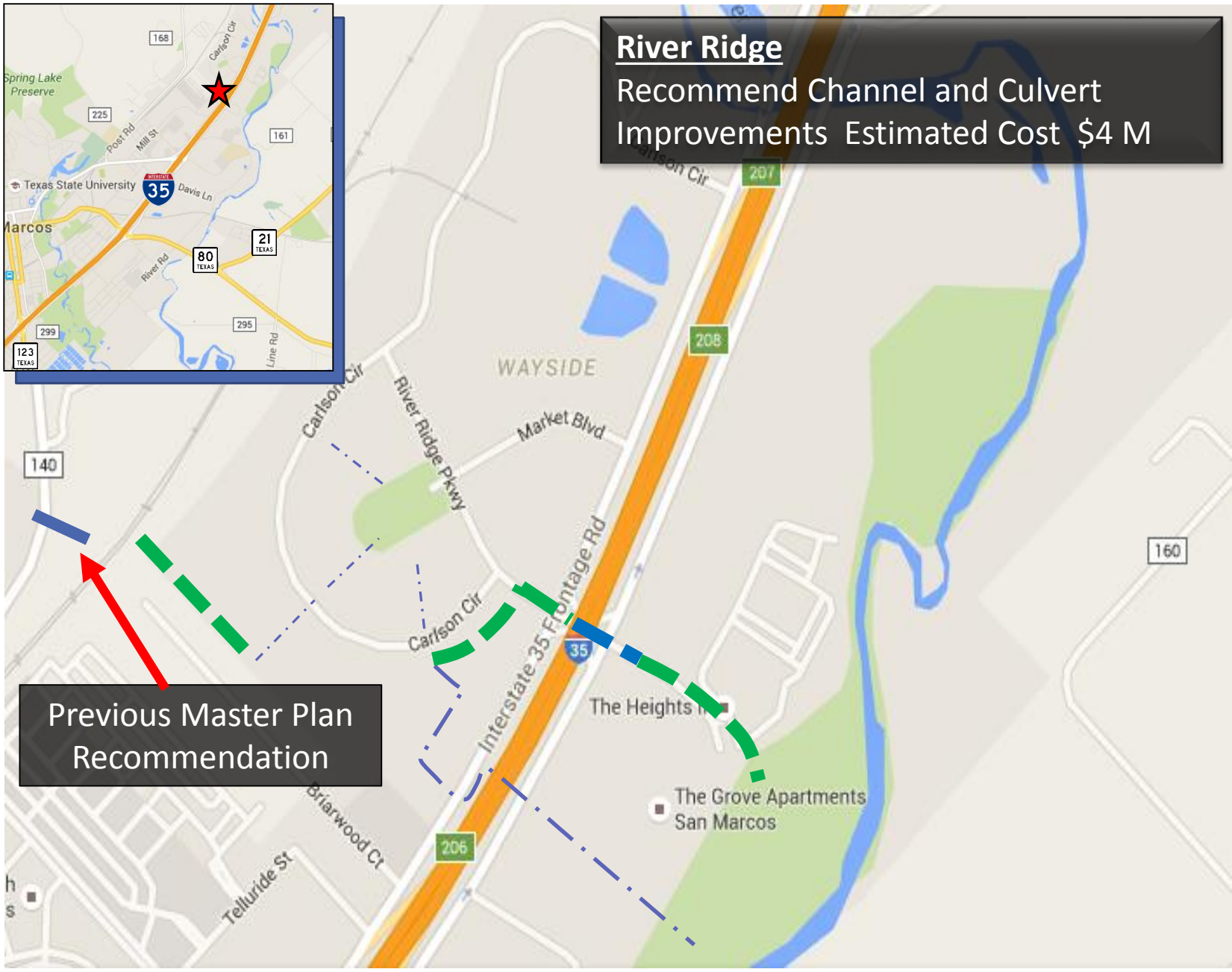
Model Review Fees

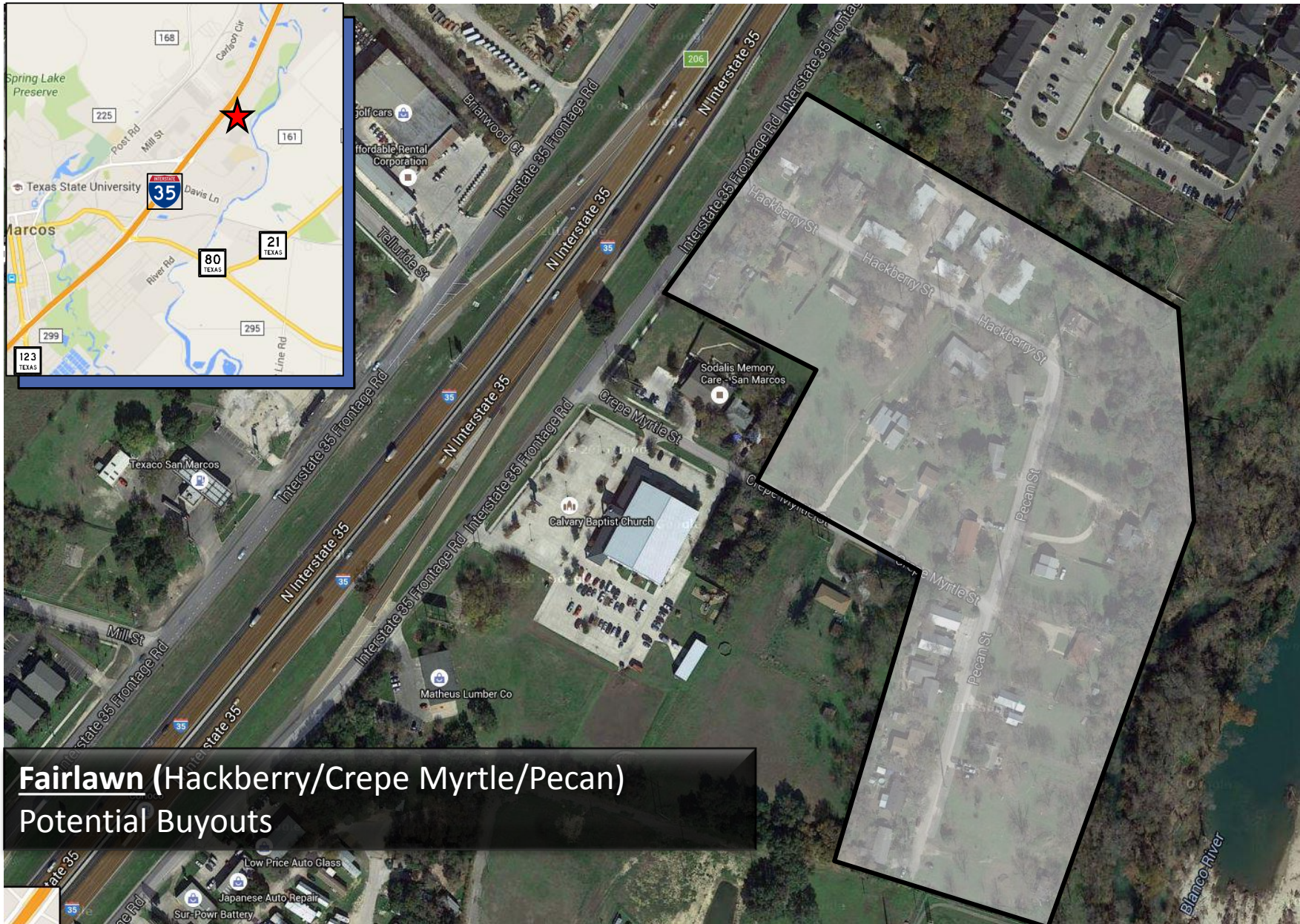
- Currently no separate fee
- 1D Hydraulic Analysis Review Fee \$2,500
- 2D Hydraulic Analysis Review Fee \$4,000
- Resubmittal fees consistent with other permit reviews.

Timing of Floodplain Development Modeling

- If goal is to understand floodplain impacts at Preferred Scenario or Zoning - could require development to do a conceptual model.
- Need to have conceptual layout to model floodplain impacts.
- General representation of development consistent with zoning requested to show no-rise is achievable.
- Final site plan consistent with concept or if not updated modeling based upon new site plan.
- Need to update in CodeSMTx process if desired.

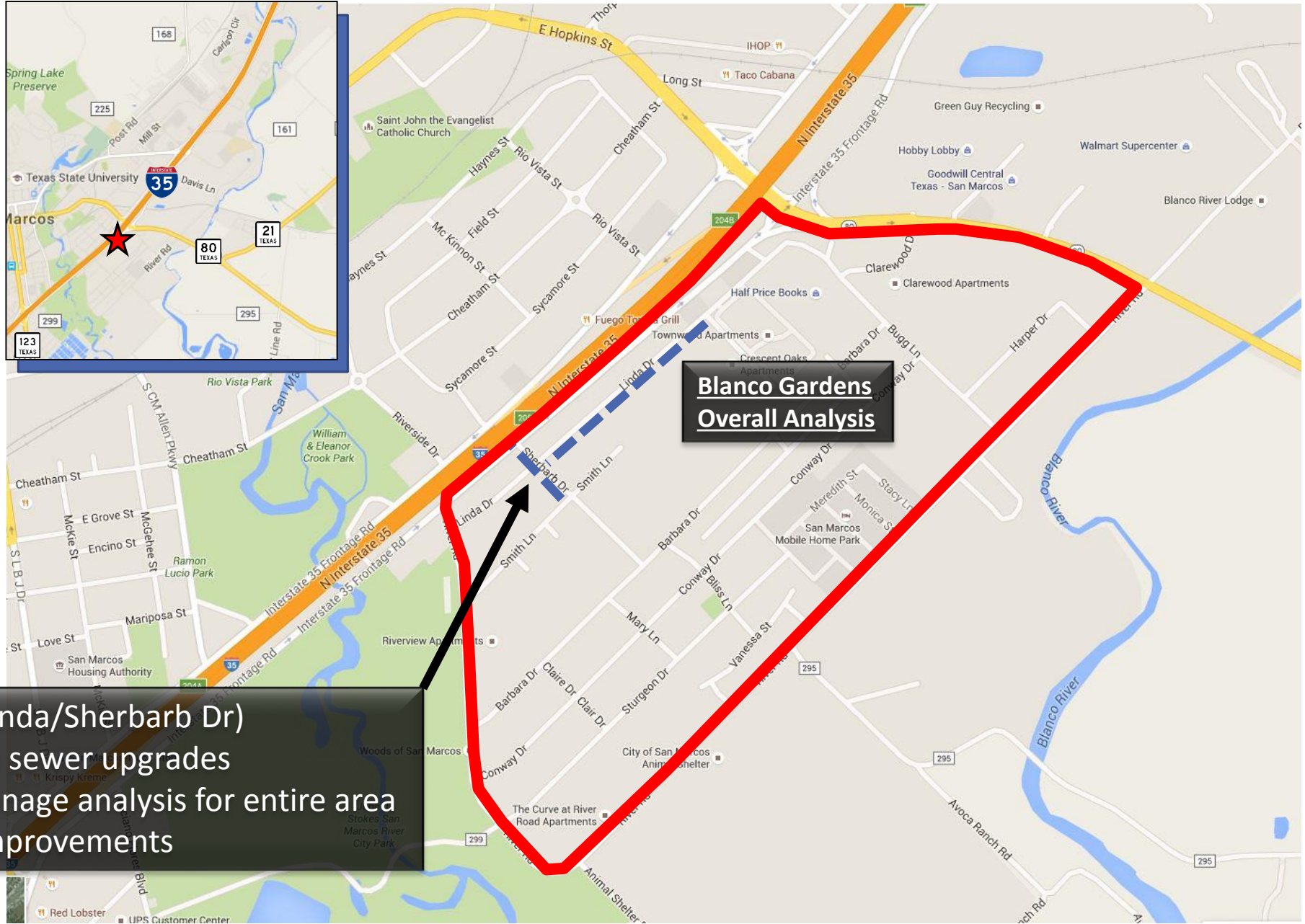
Drainage Projects in Historically Flooded Areas





Fairlawn (Hackberry/Crepe Myrtle/Pecan)
Potential Buyouts



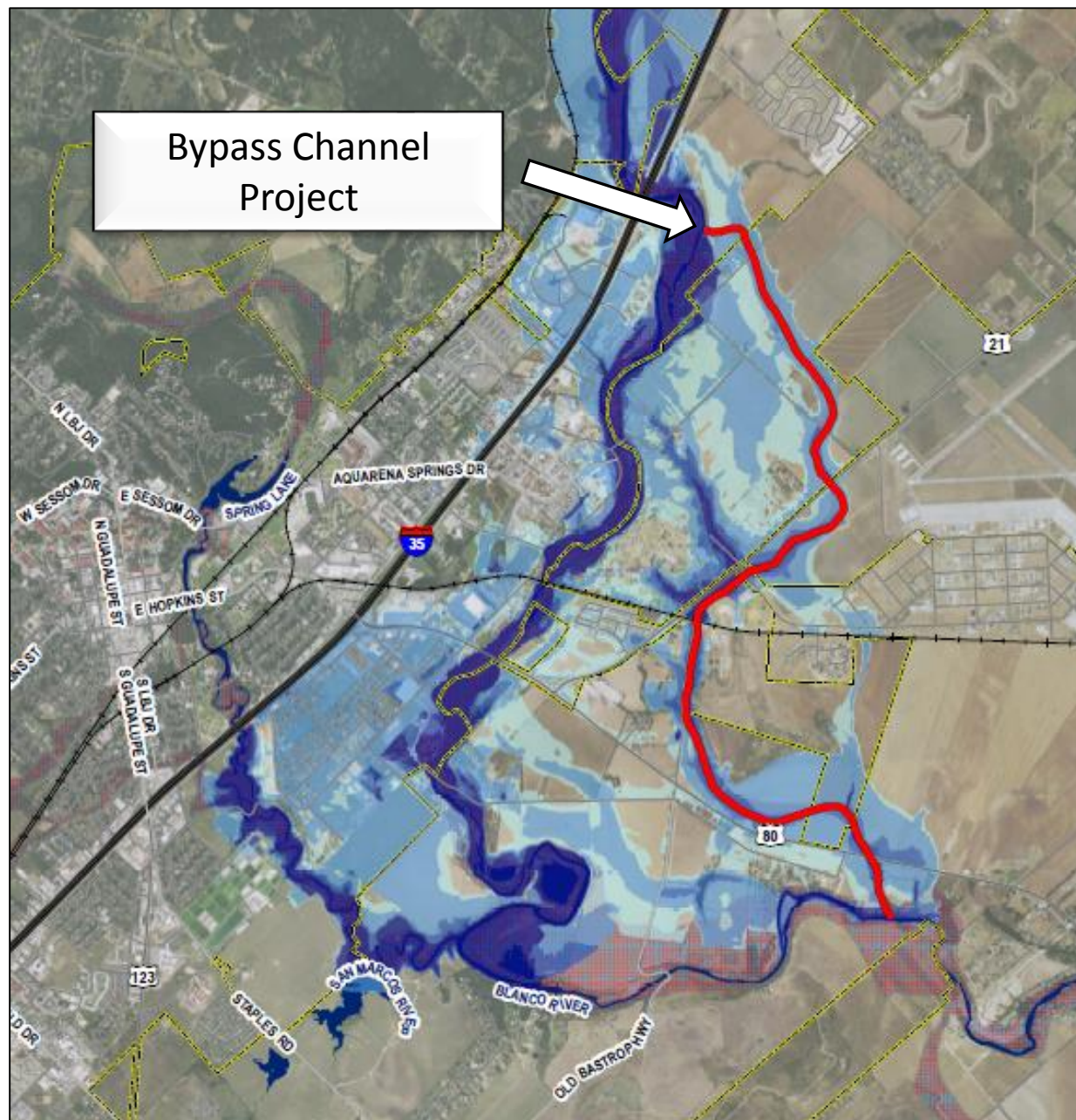


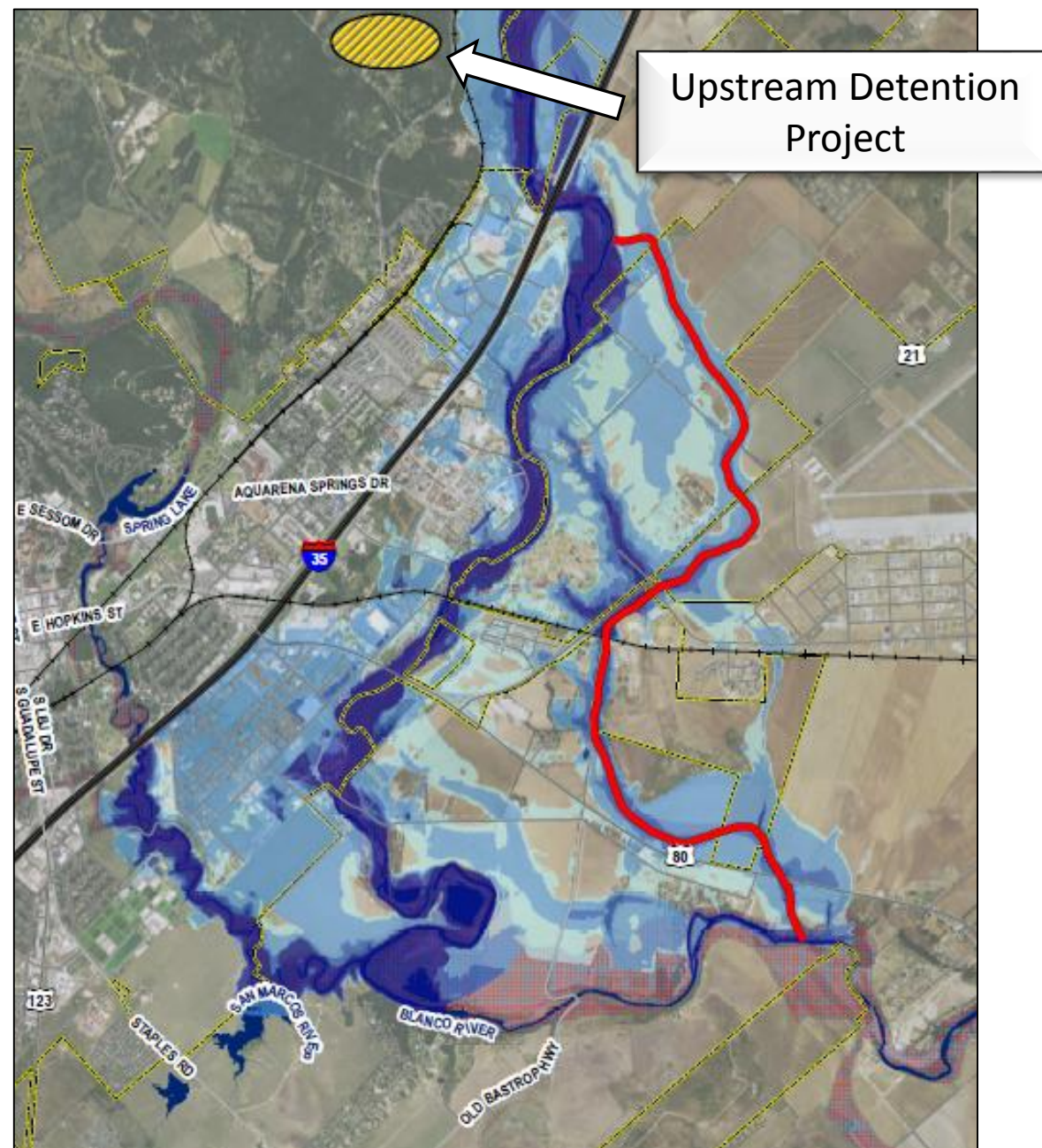
**Blanco Gardens
Overall Analysis**

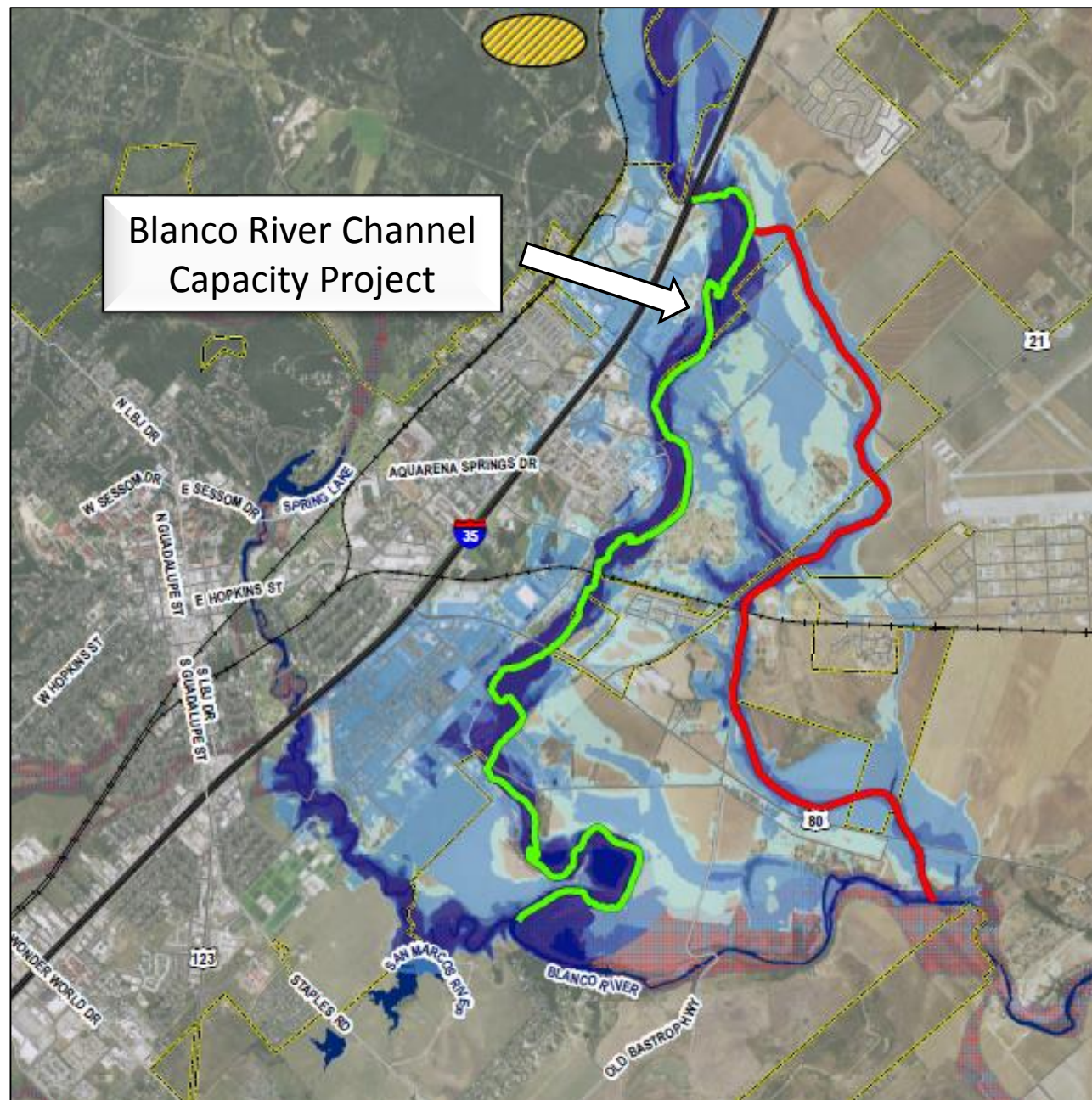
Blanco Gardens (Linda/Sherbarb Dr)
Recommend storm sewer upgrades
Update overall drainage analysis for entire area
For storm sewer improvements



Corps of Engineers Projects







Corps of Engineers Schedule

Summer 2016	Finalize GBRA Flood Protection Report
June 2016	Alternatives Milestone Meeting (authorization to further analyze flood mitigation alternatives) Local funding participation starts.
Summer 2017	Tentatively Selected Plan (TSP). Completion of various alternative analysis, benefit/cost ratio.
Winter 2017/18	Agency Decision Milestone Meeting. Go/No Go by Corps of Engineers
Summer 2018	Civil Works Review Board
Winter 2018/19	Chiefs Report to Congress for Funding (final design & construction)

CDBG – Disaster Recovery

CDBG – Disaster Recovery

- Community Development Block Grant – Disaster Relief
- \$25 Million to be declared to the City
- Two Public Meetings Held – Tuesday 4/12 & Saturday 4/16
- Poll Results
- Needs Assessment
- 90 day Action Plan from date of Federal Register

Flood Recovery Meeting Results

- 104 participants over both meetings
- 50% had received damage in both May & Oct 2015
- 66% own versus rent
- 36% do not have flood insurance
- 53% would like the City to make the area less likely to flood
- 28% would like to make their home more flood resilient
- 18% would like options to move

Next Steps

- Selection of CDBG consultant for development of Action Plan

